

REMARKS/ARGUMENTS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-20 are presently active in this case. The present Amendment amends Claims 1-4 and adds Claims 5-20. The changes and additions to the claims are supported by the disclosure as originally filed and do not add new matter.

In the outstanding Office Action, Claims 3 and 4 were objected to because of minor informalities. Claims 1-4 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claims 1-4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Gehri et al. (U.S. Patent No. 5,438,686) in view of Marchand (U.S. Patent No. 5,074,499).

In response to the objection to Claims 3 and 4, the objection is overcome by the amendments to Claims 3 and 4 which deleted the excerpt "for which it is conducting." Accordingly, no further objection on that basis is anticipated.

In response to the rejection under 35 U.S.C. § 112, second paragraph, Claims 1-4 are amended to provide antecedent basis for the cited terms. Other informalities are corrected in Claims 1-4. In view of amended Claims 1-4, it is believed that all pending claims are definite and no further rejection on that basis is anticipated. If, however, the Examiner disagrees, the Examiner is invited to telephone the undersigned who will be happy to work with the Examiner in a joint effort to derive mutually acceptable language.

In response to the rejections of Claims 1-4 under 35 U.S.C. § 103(a), Applicants respectfully request reconsideration of these rejections and traverses the rejections as follows.

First, Applicants respectfully submit that the Gheri et al. patent does not teach a "digital" transmitter.¹ The Gheri et al. patent is directed to an amplitude-modulated broadcast transmitter for transmitting at least one audio-frequency (AF) signal modulated using various

¹ See MPEP 2143.03: "All words in a claim must be considered in judging the patentability of that claim against the prior art."

types of modulation. The Gheri et al. patent does not disclose a digital transmitter. Indeed, the Gheri et al. patent clearly defines the relation between the two signals $AF1(t)$ and $AF2(t)$ and the output $y(t)$.² Since the Gheri et al. patent does not disclose anything downstream of $y(t)$, the transmitted wave shape is related to the audio frequency signals in the Gheri et al. patent and the Gheri et al. patent is an embodiment of the prior art mentioned at page 1, lines 7-14, of Applicant's specification and not a digital transmitter.

Second, even if the Gheri et al. patent were directed to a digital transmitter, it would be of a fundamentally different nature. Whereas there are two inputs graphically represented in both Fig. 1 of Applicant's specification ($I(t)$ and $Q(t)$, directed to the control device 4) and Fig. 1 of the Gheri et al. patent ($AF1$, or 7a, and $AF2$, or 7b, directed to the signal conditioner 11), these pairs of inputs are not analogous. $I(t)$ and $Q(t)$ are two complex components of a given signal. $AF1$ and $AF2$ are two distinct signals or audio-frequencies. Even if one signal is set to zero, there are still two signals, as needed to compute a sum and a difference.

Accordingly, the Gheri et al. patent does not disclose anything with respect to a processing of a single complex signal or its components. More precisely, the Gheri et al. patent does not disclose a digital radio broadcasting transmitter wherein "a signal applied to the grid and anode of the power tube has a phase and an amplitude respectively represented by a phase and an amplitude of a complex signal to be transmitted" and "the amplification characteristic of the digital radio broadcasting transmitter as a whole remains linear independently of the amplitude of the complex signal," as recited in Claim 1. Further, the Gheri et al. patent does not disclose a radio transmitter including, for example, "a control device configured to generate at least two phase control signals and at least one amplitude control signal using a real component and an imaginary component of a complex signal to be transmitted," as recited in Claim 5.

² See col. 5, lines 56-68, and col. 6, lines 1-14, in the Gheri et al. patent.

The Office Action does not state that the Marchand patent discloses these features. Accordingly, no proper combination of the Gheri et al. patent and the Marchand patent teaches all elements of independent Claim 1. It is therefore respectfully requested that the rejection of Claims 1-4 based on 35 U.S.C. § 103(a) be withdrawn.

Furthermore, the outstanding Office Action states on page 3 that the Marchand patent teaches a switching device functionally equivalent to the claimed excitation device not taught by the Gheri et al. patent. More specifically, the outstanding Office Action states that the device “operates under saturated conditions when the amplitude of the signal to be transmitted exceeds a determined threshold value.” Applicants respectfully disagree. The Marchand patent states that the switching device provides “a changeover signal when the amplitude level of the carrier wave output from said linear amplifier exceeds the threshold value.”³ The device of Marchand uses this “changeover” signal to switch between the output of a demodulator devoted to detect the frequency modulation of an initialization message and the output of another demodulator devoted to detect the frequency modulation of a speed-monitoring message.⁴ Applicants respectfully submit that Marchand’s changeover signal has nothing to do with two modes of modulation of a given signal and, in particular, with a device that “operates under saturated conditions” for certain amplitudes, as stated in the Office Action regarding the Gheri et al. patent. In fact, such a “saturation mode” is not applicable to the device in the Marchand patent. Accordingly, Applicants respectfully submit that there is no basis for combining Gheri et al. and Marchand. It is therefore respectfully requested, on this additional basis, that the rejection of Claims 1-4 based on 35 U.S.C. § 103(a) be withdrawn.

In order to vary the scope of protection recited in the claims, new Claims 5-20 are added. Claims 5 and 10-16 recite features illustrated in Figs. 1 and 3 and described at least at

³ See col. 3, lines 6-7, and col. 6, lines 65-68, in the Marchand patent.

⁴ See col. 3, lines 8-15, in the Marchand patent.

page 5, lines 10-32, and from page 6, line 19, to page 7, line 3. Claims 6, 7, 17, and 18 recite features described at page 5, lines 16-17. Claims 8 and 19 recite features described at page 5, lines 25-28. Claims 9 and 20 recite features described at page 5, lines 18-21. Thus, new claims 5-20 find non-limiting support in the disclosure as originally filed.⁵ Therefore, the changes to the claims are not believed to raise a question of new matter.⁶

The applied prior art fails to teach or suggest the combination of features recited in new independent Claim 5. More specifically, the prior art fails to teach or suggest a radio transmitter including a control device configured to generate at least two phase control signals and at least one amplitude control signal using a real component and an imaginary component of a complex signal to be transmitted; a frequency synthesizer configured to generate at least two constant signals with constant amplitude and frequency; at least two multiplier circuits arranged in correspondence with the at least two phase control signals and the at least two constant signals, each multiplier circuit comprising at least two operand inputs and being configured to generate at least one transformed phase control signal; an adder circuit configured to generate a signal equal to the sum of transformed phase control signals generated by the at least two multiplier circuits; an excitation device configured to excite a grid of a power tube using the signal generated by the adder circuit in a linear amplification mode when the complex signal to be transmitted has an amplitude below a predetermined amplitude threshold and in a saturated mode when the complex signal to be transmitted has an amplitude above the predetermined amplitude threshold; a modulator configured to generate a modulated signal at an anode of the power tube using the at least one amplitude control signal generated by the control device; and a matching and coupling device configured to generate a matched and coupled signal using the modulated signal; and an

⁵ See also page 8, lines 1-21 with corresponding Figure 2; page 8, lines 22-35; and page 9, lines 1-5 with corresponding Figure 3, for example.

⁶ See MPEP 2163.06 stating that "information contained in any one of the specification, claims or drawings of the application as filed may be added to any other part of the application without introducing new matter."

Application No. 09/868,918
Reply to Office Action of November 2, 2004

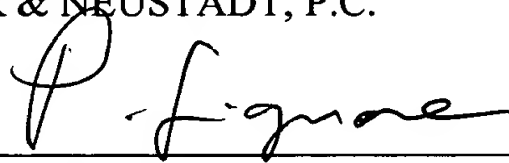
antenna configured to transmit the matched and coupled signal. Accordingly, Claims 5-20 are believed to be patentably distinct over the prior art and allowable.

Consequently, in view of the present Amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-20 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicant's undersigned representative at the below listed telephone number.

Respectfully submitted,

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